

Serial No.: 10/564,102

Confirmation No.: 7195

Filed: June 19, 2006

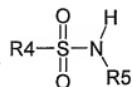
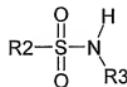
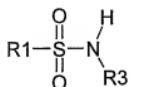
For: DENTAL COMPOSITION COMPRISING ETHYLENE IMINE COMPOUNDS AND NON-REACTIVE ACCELERATORS

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**Amendments to the Claims**

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

1. (Currently Amended) A dental composition comprising:
  - (a) an N-alkyl aziridine polyether,
  - (b) a compound having an SO<sub>2</sub>-NH group, wherein the compound is represented by at least one of the following formulas:



wherein

R1 is a moiety selected from the group consisting of C<sub>1</sub>-C<sub>22</sub> alkyl, C<sub>2</sub>-C<sub>22</sub> alkenyl, C<sub>2</sub>-C<sub>22</sub> alkynyl, C<sub>7</sub>-C<sub>22</sub> arylalkyl and C<sub>3</sub>-C<sub>22</sub> cycloalkyl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and/or up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S,

R2 is a moiety selected from the group consisting of C<sub>6</sub>-C<sub>18</sub> aryl, C<sub>7</sub>-C<sub>22</sub> alkylaryl, C<sub>2</sub>-C<sub>22</sub> cycloalkylaryl, C<sub>7</sub>-C<sub>22</sub> alkenylaryl and C<sub>7</sub>-C<sub>22</sub> alkinylaryl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S,

R3 is H, R1, or R2,

R4 is R1 or R2, and

R5 is a chemical linkage to a polymer, wherein component (b) is present in an amount of about 0.01% by weight to about 6.0% by weight; and

(c) an initiator.

**Amendment and Response**

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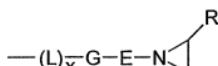
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2. (Previously Presented) The composition of claim 1, further comprising at least one additive selected from the group consisting of modifiers, fillers, dyes, pigments, thixotropic agents, flow improvers, polymeric thickeners, surfactants, odorous substances, diluting agents and flavouring agents.
3. (Previously Presented) The composition according to claim 1, wherein component (a) comprises a structural element represented by the following formula:



wherein

R is a moiety selected from the group consisting of H, C<sub>1</sub>-C<sub>12</sub> alkyl, C<sub>2</sub>-C<sub>12</sub> alkenyl, C<sub>2</sub>-C<sub>12</sub> alkinyl, C<sub>7</sub>-C<sub>15</sub> alkylaryl, C<sub>7</sub>-C<sub>15</sub> arylalkyl, and C<sub>3</sub>-C<sub>12</sub> cycloalkyl, wherein any of the hydrogen atoms of the moiety may be replaced by Cl or F and up to five carbon atoms of the moiety may be replaced by atoms or group of atoms selected from O, CO, N, and S,

E is selected from the group consisting of C<sub>1</sub> - C<sub>18</sub> branched or unbranched hydrocarbon chains wherein up to five carbon atoms of the chain may be replaced by an atom or group of atoms selected from O, CO, N, and S,

G is a group selected from C(O)O, C(O)NR, C(O), C(O)C(O), C(O)(CH<sub>2</sub>)<sub>m</sub>C(O) where m is 1 to 10, C(S)NR, and CH<sub>2</sub>,

L is O, S, or NR and

x is 0 or 1.

4. (Cancelled)

- 5-6. (Cancelled)

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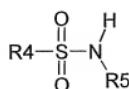
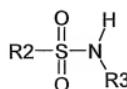
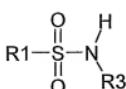
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7. (Previously Presented) The composition of claim 1, wherein the molecular weight of component (b) is in the range of about 90 to about 2000 g mol<sup>-1</sup>.
8. (Previously Presented) The composition of claim 1, wherein component (b) is selected from the group consisting of benzene sulfonic acid N-butyl amide, p-toluene sulfonic acid N-ethyl amide, o-toluene sulfonic acid N-ethyl amide, benzene sulfonic acid amide and a mixture of o-/p- toluene sulfonic acid N-ethyl amide.
9. (Previously Presented) The composition of claim 1, wherein initiator (c) is selected from the group consisting of protonating or alkylating agents or wherein the initiator (c) generates protons or reactive alkylating agents in a chemical reaction.
10. (Previously Presented) The composition of claim 1 having a working time at 23 °C of equal or less than 3:30 min according to DIN EN ISO 4823:2000 or an oral setting time of equal or less than 3:30 min.
11. (Currently Amended) A kit comprising a base part and a catalyst part, wherein the base part comprises an N-alkyl aziridine polyether, the catalyst part comprises an initiator, and wherein a compound having an SO<sub>2</sub>-NH group is present either in the base part or the catalyst part or in the base part and the catalyst part, wherein the compound is represented by at least one of the following formulas:



wherein

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R1 is a moiety selected from the group consisting of C<sub>1</sub>-C<sub>22</sub> alkyl, C<sub>2</sub>-C<sub>22</sub> alkenyl, C<sub>2</sub>-C<sub>22</sub> alkinyl, C<sub>7</sub>-C<sub>22</sub> arylalkyl and C<sub>3</sub>-C<sub>22</sub> cycloalkyl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and/or up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S,

R2 is a moiety selected from the group consisting of C<sub>6</sub>-C<sub>18</sub> aryl, C<sub>7</sub>-C<sub>22</sub> alkylaryl, C<sub>2</sub>-C<sub>22</sub> cycloalkylaryl, C<sub>7</sub>-C<sub>22</sub> alkenylaryl and C<sub>7</sub>-C<sub>22</sub> alkinylaryl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S,

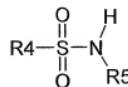
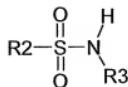
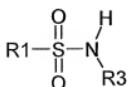
R3 is H, R1, or R2,

R4 is R1 or R2, and

R5 is a chemical linkage to a polymer; and

wherein the compound having an SO<sub>2</sub>-NH group is present in an amount of about 0.01% by weight to about 6.0% by weight.

12. (Currently Amended) A kit comprising a base part and a catalyst part, wherein the base part comprises an N-alkyl aziridine polyether, the catalyst part comprises an initiator, and wherein a compound having an SO<sub>2</sub>-NH group is present in a further part and is not present in the catalyst part or in the base part, wherein the compound is represented by at least one of the following formulas:



wherein

R1 is a moiety selected from the group consisting of C<sub>1</sub>-C<sub>22</sub> alkyl, C<sub>2</sub>-C<sub>22</sub> alkenyl, C<sub>2</sub>-C<sub>22</sub> alkinyl, C<sub>7</sub>-C<sub>22</sub> arylalkyl and C<sub>3</sub>-C<sub>22</sub> cycloalkyl, wherein one or more hydrogen atoms of

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the moiety may be replaced by Cl or F and/or up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S,

R2 is a moiety selected from the group consisting of C<sub>6</sub>-C<sub>18</sub> aryl, C<sub>7</sub>-C<sub>22</sub> alkylaryl, C<sub>2</sub>-C<sub>22</sub> cycloalkylaryl, C<sub>7</sub>-C<sub>22</sub> alkenylaryl and C<sub>7</sub>-C<sub>22</sub> alkinylaryl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S,

R3 is H, R1, or R2,

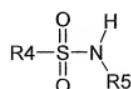
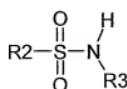
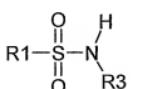
R4 is R1 or R2, and

R5 is a chemical linkage to a polymer; and

wherein the compound having an SO<sub>2</sub>-NH group is present in an amount of about 0.01% by weight to about 6.0% by weight.

13. (Currently Amended) A method of producing a dental composition comprising the step of mixing

- an N-alkyl aziridine polyether,
- a compound having an SO<sub>2</sub>-NH group, wherein the compound is represented by at least one of the following formulas:



wherein

R1 is a moiety selected from the group consisting of C<sub>1</sub>-C<sub>22</sub> alkyl, C<sub>2</sub>-C<sub>22</sub> alkenyl, C<sub>2</sub>-C<sub>22</sub> alkinyl, C<sub>7</sub>-C<sub>22</sub> arylalkyl and C<sub>3</sub>-C<sub>22</sub> cycloalkyl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and/or up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S,

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R2 is a moiety selected from the group consisting of C<sub>6</sub>-C<sub>18</sub> aryl, C<sub>7</sub>-C<sub>22</sub> alkylaryl, C<sub>2</sub>-C<sub>22</sub> cycloalkylaryl, C<sub>7</sub>-C<sub>22</sub> alkenylaryl and C<sub>7</sub>-C<sub>22</sub> alkinylaryl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S,

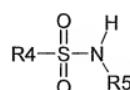
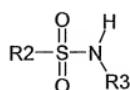
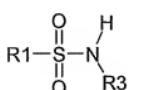
R3 is H, R1, or R2,

R4 is R1 or R2, and

R5 is a chemical linkage to a polymer, andwherein component (b) is present in an amount of about 0.01% by weight to about 6.0% by weight; and

(c) an initiator.

14. (Currently Amended) A method for enhancing the setting speed of a dental composition, comprising a polyether, the method comprising the step of incorporating into the composition a compound having an SO<sub>2</sub>-NH group, wherein the compound is represented by at least one of the following formulas:



wherein

R1 is a moiety selected from the group consisting of C<sub>1</sub>-C<sub>22</sub> alkyl, C<sub>2</sub>-C<sub>22</sub> alkenyl, C<sub>2</sub>-C<sub>22</sub> alkinyl, C<sub>7</sub>-C<sub>22</sub> arylalkyl and C<sub>3</sub>-C<sub>22</sub> cycloalkyl, wherein one or more hydrogen atoms of the moiety may be replaced by Cl or F and/or up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S,

R2 is a moiety selected from the group consisting of C<sub>6</sub>-C<sub>18</sub> aryl, C<sub>7</sub>-C<sub>22</sub> alkylaryl, C<sub>2</sub>-C<sub>22</sub> cycloalkylaryl, C<sub>7</sub>-C<sub>22</sub> alkenylaryl and C<sub>7</sub>-C<sub>22</sub> alkinylaryl, wherein one or more hydrogen

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atoms of the moiety may be replaced by Cl or F and up to five carbon atoms may be replaced by atoms or group of atoms selected from O, CO, N, and S,

R3 is H, R1, or R2,

R4 is R1 or R2, and

and R5 is a chemical linkage to a polymer, and

wherein the compound having an SO<sub>2</sub>-NH group is present in an amount of about 0.01%  
by weight to about 6.0% by weight.

15. (Previously Presented) The dental composition of claim 1, wherein the composition is a dental impression material.
16. (Cancelled)
17. (Currently Amended) The dental composition of claim 1[[16]], wherein the initiator comprises a substituted alkyl sulfonium salt.
18. (Cancelled)
19. (Currently Amended) The kit dental composition of claim 11[[18]], wherein the initiator comprises a substituted alkyl sulfonium salt.
20. (Cancelled)
21. (Previously Presented) The kit dental composition of claim 12[[20]], wherein the initiator comprises a substituted alkyl sulfonium salt.
22. (Cancelled)

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23. (Currently Amended) The method of claim 13[[22]], wherein the initiator comprises a substituted alkyl sulfonium salt.
24. (Cancelled)
25. (Currently Amended) The method of claim 14[[24]], wherein the initiator comprises a substituted alkyl sulfonium salt.
26. (New) The dental composition of claim 1, wherein the Shore Hardness A measured after 6 minutes according to DIN EN ISO 53505 is greater than a value measured for the dental composition without component (b).
27. (New) The dental composition of claim 26, wherein the Shore Hardness A measured after 6 minutes according to DIN EN ISO 53505 is more than about 30% greater than the value measured for the dental composition without component (b).
28. (New) A dental composition comprising:
  - (a) an N-alkyl aziridine polyether,
  - (b) a compound having an SO<sub>2</sub>-NH group,  
wherein component (b) is selected from the group consisting of benzene sulfonic acid N-butyl amide, p-toluene sulfonic acid N-ethyl amide, o-toluene sulfonic acid N-ethyl amide, benzene sulfonic acid amide and a mixture of o-/p- toluene sulfonic acid N-ethyl amide; and
  - (c) an initiator.

**Amendment and Response**

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29. (New) A dental composition comprising:
  - (a) an N-alkyl aziridine polyether,
  - (b) a compound having an SO<sub>2</sub>-NH group,  
wherein component (b) comprises p-toluene sulfonic acid N-ethyl amide; and
  - (c) an initiator.
30. (New) The dental composition of claim 1, wherein R3 is R1 or R2.
31. (New) The kit of claim 11, wherein R3 is R1 or R2.
32. (New) The kit of claim 12, wherein R3 is R1 or R2.
33. (New) The method of claim 13, wherein R3 is R1 or R2.
34. (New) The method of claim 14, wherein R3 is R1 or R2.